

WHAT IS CLAIMED IS:

1. A hydrogel adhesive for attachment to mammalian skin comprising 10-60 wt% of a cross-linked hydrophilic polymer; 5-80 wt% of a water-soluble non-ionic humectant, and 10-85 wt% water, characterized in that

the hydrophilic polymer comprises 1-50 mole% of one or more strong-acid monomers having a pKa below 3 and 50-99 mole% of one or more weak-acid monomers, having a pKa above 3, the strong-acid monomer being essentially its salt form, and the weak-acid monomer being at least 50 mole% in its acid form, and at least 5 mole% in its salt form.
2. A hydrogel adhesive according to Claim 1 having a pH which ranges from 3 to 6, preferably 3 to 5.5, most preferably 3.5 to 5.
3. A hydrogel adhesive according to Claims 1-2, wherein said hydrophilic polymer comprises 5-45, preferably 8-30, mole% of one or more strong acid monomers with pKa below 3, and 60-95, preferably 70-92, mole% of one or more weak-acid monomers with pKa above 3.
4. A hydrogel adhesive according to Claims 1-3, wherein the weak acid monomer is present at 60 to 90 mole % in its acid form and 10 to 40 mole % in its salt form, preferably 60 to 80 mole % in its acid form and 20 to 40 mole% in its salt form.
5. A hydrogel adhesive according to Claims 1-4 wherein the strong-acid monomer is selected from 2-acrylamido-2-methylpropanesulfonic acid (meth)acrylic acid 3-sulfopropyl ester), (meth)acrylic acid 2-sulfoethyl ester and the weak-acid monomer is selected from acrylic acid and methacrylic acid.

6. A hydrogel adhesive according to Claims 1-5 wherein the strong-acid monomer is 2-acrylamido-2-methylpropanesulfonic acid and the weak-acid monomer is acrylic acid.
7. A hydrogel adhesive according to Claims 1-6 wherein said water-soluble nonionic humectant is selected from polyhydric alcohols, and is preferably glycerol.
8. A hydrogel adhesive according to Claims 1-7 having a water activity which is in the range of 0.35-0.95, preferably 0.4-0.85, more preferably 0.45-0.75.
9. A hydrogel adhesive according to Claims 1-8 having an elastic modulus at a temperature of 25°C G'_{25} and having a viscous modulus at a temperature of 25°C, G''_{25} selected such that :
 - a) G'_{25} (1rad/sec) is in the range of 400 Pa to 20000 Pa, preferably 700 Pa to 15000 Pa, more preferably 1000 Pa to 10000Pa, even more preferably 2000 Pa to 6000 Pa ;
 - b) G''_{25} (1rad/sec) is in the range of 100 Pa to 15000Pa, preferably 100 Pa to 10000 Pa, more preferably 300 Pa to 5000 Pa, even more preferably 1000 Pa to 4000 Pa ; and
 - c) the ratio G''_{25} (1rad/sec)/ G'_{25} (1rad/sec) is in the range of 0.1 to 1, more preferably in the range of 0.3 to 0.75, even more preferably in the range of 0.35 to 0.65.
10. A hydrogel adhesive according to Claims 1-9 having a contact angle of at least 40 degrees, more preferably at least 60 degrees.

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11. A hydrogel adhesive according to Claims 1-10 having a peel force on dry skin of between 0.3 to 4N/cm, preferably 1 to 3N/cm or a peel force on PET of between 0.2 to 3.5 N/cm, preferably 0.3 to 3.0 N/cm.
 12. A disposable human waste management device comprising a bag, said bag having an aperture and a flange surrounding said aperture, said flange having a wearer facing surface and a garment facing surface, wherein said wearer facing surface comprises a hydrogel adhesive according to Claims 1-11.
 13. An absorbent article having a wearer facing surface and a garment facing surface, wherein said wearer facing surface comprises a hydrogel adhesive according to Claims 1-11.
 14. A functional article selected from cosmetic delivery articles, pharmaceutical delivery articles, decorative cosmetic articles, cleaning articles, protective articles, clothing, prosthesis, cold wraps, thermal wraps, hearing aids, ornamental articles, goggles and eye wear, for attachment to the skin, said article comprising a hydrogel adhesive according to Claims 1-11.